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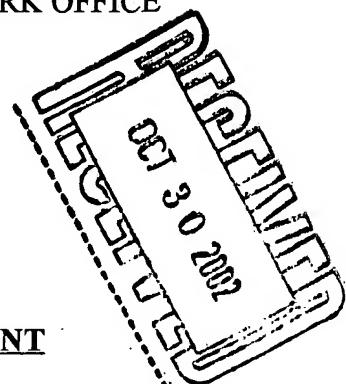
Patent Application

Inventor: B. Gene Cawlfeld

For: Megasonically Energized Liquid Interface Apparatus and Method

Ser. No. 10/064,571

Attorney Docket Number P-B021



**INFORMATION DISCLOSURE STATEMENT**

Pursuant to the duty of disclosure under 37 C.F.R. § 1.56, Applicant desires to bring to the attention of the Examiner known references believed to be material to the patentability of this application. This disclosure is made in accordance with 37 C.F.R. §§ 1.97 and 1.98 and § 609 of the *Manual of Patent Examining Procedures*, within three months of the electronic filing of the above-identified application.

**U.S. PATENTS & PRE-GRANT PUBLICATIONS:**

| <u>Document Number</u> | <u>Publication Date</u><br><u>MM-DD-YYYY</u> | <u>Patentee Name</u> |
|------------------------|--|----------------------|
| US 2001/0013355 A1     | 08-16-2001                                   | Busnaina             |
| US 2001/0014498 A1     | 08-16-2001                                   | Amico et al.         |
| US 2002/0011256 A1     | 01-01-2002                                   | Bran                 |
| US 2002-0020430 A1     | 02-21-2002                                   | Wirth et al.         |
| US 2002-0026729 A1     | 03-07-2002                                   | Bergman et al.       |
| US 2002-0069895 A1     | 06-13-2002                                   | Struven              |
| US 2002-0095816 A1     | 07-25-2002                                   | Bergman et al.       |
| US 2002-0096578 A1     | 07-25-2002                                   | Al-Jiboory           |
| US 4736759             | 04-12-1988                                   | Coberly et al.       |
| US 4736760             | 04-12-1988                                   | Coberly et al.       |
| US 4869278             | 09-26-1989                                   | Bran                 |
| US 4998549             | 03-12-1991                                   | Bran                 |
| US 5037481             | 08-06-1991                                   | Bran                 |
| US 5143103             | 09-01-1992                                   | Basso et al.         |

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| <u>Document Number</u> | <u>Publication Date</u><br><u>MM-DD-YYYY</u> | <u>Patentee Name</u> |
|------------------------|--|----------------------|
| US 5286657             | 02-15-1994                                   | Bran                 |
| US 5339842             | 08-23-1994                                   | Bok                  |
| US 5365960             | 11-22-1994                                   | Bran                 |
| US 5383484             | 01-24-1995                                   | Thomas et al.        |
| US 5533540             | 07-09-1996                                   | Stanasolovich et al. |
| US 5579792             | 12-03-1996                                   | Stanasolovich et al. |
| US 5625249             | 04-29-1997                                   | Grant                |
| US 5656097             | 08-12-1997                                   | Olesen et al.        |
| US 5695833             | 12-09-1997                                   | Bok et al.           |
| US 5865894             | 02-22-1999                                   | Reynolds             |
| US 5908509             | 06-01-1999                                   | Olesen et al.        |
| US 5919311             | 07-06-1999                                   | Shive et al.         |
| US 5932077             | 08-03-1999                                   | Reynolds             |
| US 5950645             | 09-14-1999                                   | Olesen et al.        |
| <u>US 5954885</u>      | <u>09-21-1999</u>                            | <u>Ohmi</u>          |
| US 5980647             | 11-09-1999                                   | Buker et al.         |
| US 5996594             | 12-07-1999                                   | Roy et al.           |
| US 5996595             | 12-07-1999                                   | Olesen et al.        |
| US 6021789             | 02-08-2000                                   | Akatsu et al.        |
| US 6039055             | 03-21-2000                                   | Akatsu et al.        |
| US 6039059             | 03-21-2000                                   | Bran                 |
| US 6082373             | 07-04-2000                                   | Sakurai et al.       |
| US 6119367             | 09-19-2000                                   | Kamikawa et al.      |
| US 6124214             | 09-26-2000                                   | Hembree et al.       |
| US 6140744             | 10-31-2000                                   | Bran                 |
| US 6158445             | 12-12-2000                                   | Olesen et al.        |
| US 6181051 B1          | 01-30-2001                                   | Puskas               |
| US 6199563 B1          | 03-13-2001                                   | Uehara et al.        |

| <u>Document Number</u> | <u>Publication Date</u><br><u>MM-DD-YYYY</u> | <u>Patentee Name</u> |
|------------------------|--|----------------------|
| US 6224713 B1          | 05-01-2001                                   | Hembree et al.       |
| US 6267122 B1          | 07-31-2001                                   | Guldi et al.         |
| US 6269511 B1          | 08-07-2001                                   | Andreas et al.       |
| US 6273100 B1          | 08-14-2001                                   | Andreas et al.       |
| US 6276370 B1          | 08-21-2001                                   | Fisch et al.         |
| US 6279584 B1          | 08-28-2001                                   | Huffman              |
| US 6286231 B1          | 09-11-2001                                   | Bergman et al.       |
| US 6295998 B1          | 10-02-2001                                   | Kudelka et al.       |
| US 6295999 B1          | 10-02-2001                                   | Bran                 |
| US 6311702 B1          | 11-06-2001                                   | Fishkin              |
| US 6319386 B1          | 11-20-2001                                   | Reynolds             |
| US 6333268 B1          | 12-25-2001                                   | Starov et al.        |
| US 6357142 B1          | 03-19-2002                                   | Bergman et al.       |
| US 6375752 B1          | 04-23-2002                                   | Otsuki et al.        |
| US 6378534 B1          | 04-30-2002                                   | Olesen et al.        |

#### NON-PATENT PUBLICATIONS:

VERHAVERBEKE et al.; "Single-Wafer, Short Cycle Time Wet Clean Technology"; Semiconductor International; July 2002 (online electronic copy of print article)

KOHLI et al.; "Nanoscale Removal of Contaminant Particles & Films"; Vacuum Technology & Coating; August 2001;

MEURIS et al.; "The IMEC Clean: Implementation in Advanced CMOS Manufacturing"; Semiconductor Fabtech, 11th Ed.; (c) 2000; ICG Publishing Ltd.; Hong Kong Advertisement; "Looking for better post-CMP cleans?"; Semiconductor Fabtech, 11th Ed.; (c) 2000; ICG Publishing Ltd.; Hong Kong Advertisement; "Wish your wafers were cleaner?"; Semiconductor Fabtech, 11th Ed.; (c) 2000; ICG Publishing Ltd.; Hong Kong

McCONNELL, Christopher F.; "Examining the Effects of Wafer Surface Chemistry on Particle Removal Using Direct-Displacement Isopropyl Alcohol Drying"; Reprint from Microcontamination, February 1991; Canon Communications, Inc.

No item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.

Copies of the cited references are enclosed. In keeping with the spirit of the Paperwork Reduction Act, Applicant has provided a legible copy of each reference as required by 35 CFR 1.98(a)(2) in the form of digital images encoded on a Compact Disc-Recordable (CD-R) disc. This form of "legible copy" is enumerated in 35 CFR 1.52(a)(1)(v) as one type of copy used by the Patent Office. The CD-R disc is labeled in accordance with 37 CFR 1.52 guidelines, although only one disc is provided. Duplicate discs will be provided if required.

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| <u>File Name</u>  | <u>File Size (bytes)</u> | <u>Date</u>     |
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| 2002-0026729.tiff | 1,264,784                | 08-01-02 2:44p  |
| 2002-0069895.tiff | 426,300                  | 07-11-02 3:18p  |
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| 4736759.tiff      | 1,042,564                | 08-01-02 2:31p  |

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| 4869278.tiff     | 913,080                  | 08-01-02 2:30p  |
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| 5037481.tiff     | 1,053,320                | 08-01-02 2:28p  |
| 5143103.tiff     | 480,340                  | 08-01-02 2:27p  |
| 5286657.tiff     | 752,248                  | 08-01-02 2:26p  |
| 5339842.tiff     | 690,988                  | 08-01-02 2:25p  |
| 5365960.tiff     | 945,968                  | 08-01-02 2:24p  |
| 5383484.tiff     | 626,324                  | 08-01-02 2:23p  |
| 5533540.tiff     | 571,180                  | 08-01-02 2:22p  |
| 5579792.tiff     | 556,504                  | 08-01-02 2:20p  |
| 5625249.tiff     | 541,628                  | 08-01-02 2:19p  |
| 5656097.tiff     | 2,086,460                | 08-01-02 2:18p  |
| 5695833.tiff     | 800,624                  | 08-01-02 2:17p  |
| 5865894.tiff     | 537,396                  | 08-01-02 2:15p  |
| 5908509.tiff     | 1,745,332                | 08-01-02 2:14p  |
| 5919311.tiff     | 698,364                  | 08-01-02 2:11p  |
| 5932077.tiff     | 545,040                  | 08-01-02 2:09p  |
| 5950645.tiff     | 1,711,472                | 08-01-02 2:08p  |
| 5954885.tiff     | 397,552                  | 08-01-02 2:07p  |
| 5980647.tiff     | 586,728                  | 08-01-02 2:06p  |
| 5996594.tiff     | 591,328                  | 08-02-02 11:20a |
| 5996595.tiff     | 1,667,092                | 08-01-02 2:04p  |
| 6021789.tiff     | 435,500                  | 08-01-02 2:01p  |
| 6039055.tiff     | 355,216                  | 08-02-02 11:10a |
| 6039059.tiff     | 1,000,804                | 08-01-02 1:55p  |
| 6082373.tiff     | 961,672                  | 08-01-02 1:20p  |
| 6119367.tiff     | 1,440,700                | 08-01-02 1:09p  |

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| 6140744.tiff            | 1,268,352                | 08-01-02 1:54p  |
| 6158445.tif             | 1,729,644                | 07-24-02 9:08a  |
| 6181051.tiff            | 2,217,352                | 08-01-02 12:52p |
| 6199563.tiff            | 1,128,024                | 08-01-02 12:46p |
| 6224713.tiff            | 519,100                  | 08-01-02 12:44p |
| 6267122.tiff            | 405,368                  | 08-01-02 12:43p |
| 6269511.tiff            | 841,376                  | 08-02-02 11:09a |
| 6273100.tiff            | 695,580                  | 08-02-02 11:08a |
| 6276370.tiff            | 870,880                  | 08-02-02 11:07a |
| 6279584.tiff            | 618,224                  | 08-01-02 12:42p |
| 6286231.tiff            | 1,252,136                | 08-01-02 1:50p  |
| 6295998.tiff            | 1,066,600                | 08-01-02 1:48p  |
| 6295999.tiff            | 1,171,456                | 08-02-02 11:01a |
| 6311702.tiff            | 635,124                  | 06-17-02 2:27p  |
| 6319386.tiff            | 520,792                  | 08-01-02 1:36p  |
| 6333268.tiff            | 3,596,392                | 08-01-02 1:33p  |
| 6357142.tiff            | 1,236,376                | 08-01-02 1:30p  |
| 6375752.tiff            | 475,812                  | 07-05-02 1:15p  |
| 6378534.tiff            | 1,754,896                | 07-01-02 12:28p |
| Fabtech IMEC.tifl       | 10,508,276               | 10-21-02 11:48a |
| McConnell Article.tif   | 546,200                  | 08-02-02 9:54a  |
| Verteq Ad1.jpg          | 1,551,741                | 08-28-02 9:11a  |
| Verteq Ad2.jpg          | 1,442,601                | 08-28-02 9:35a  |
| Wet Clean Article.htm   | 33,620                   | 08-02-02 10:23a |
| Wet Clean Article_files | <DIR>                    | 08-02-02 11:57a |
| VT&C.tif                | 191,254,680              | 10-21-02 12:28a |
| ////                    |                          |                 |

In the above-given list, the file for each granted U.S. patent is given a seven-digit file name reflecting the issue number of the respective patent, and each U.S. patent application publication is given an eleven-digit file name reflecting the publication number of the respective application publication. Digital color copies of the non-patent references are also included on the CD-ROM, along with black and white paper copies as a backup.

Applicant expressly reserves the right to question the relevancy and materiality of these references, in whole or in part, or in combination, subsequent to the filing of this Information Disclosure Statement.

Respectfully submitted,

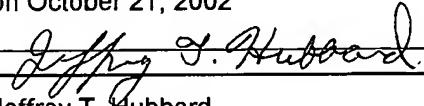


Jeffrey T. Hubbard  
Reg. No. 38,923

Kelly & Hubbard  
2401 Turtle Creek Blvd.  
Dallas, Texas 75219-4760  
Tel. 214-528-1881  
Attorneys for Applicant

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